

Simulink® Compiler™ Release Notes



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Simulink® Compiler™ Release Notes

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R2023a

Version: 1.6

New Features

Bug Fixes

FMU Export dialog allows modifications to names and data types for root input ports, root output ports and parameters

In the FMU Export dialog, after you refresh the dialog, you can change the names of the root input ports, root output ports, and parameters before you export the standalone FMU. You can also convert float, (u)int8, (u)int16, uint32, (u)int64 to FMI-supported data types (double, int32) for root input ports, root output ports, and parameters.

Use UseSimulinkWebView option to add an interactive web view of the model to the app generated by simulink.compiler.genapp

You can set the UseSimulinkWebView option in the simulink.compiler.genapp function to generate a web view of a model in the app. Use the web view to navigate through subsystems, model references, and other blocks. Simulink Report Generator is required to use UseSimulinkWebView.

R2022b

Version: 1.5

New Features

Bug Fixes

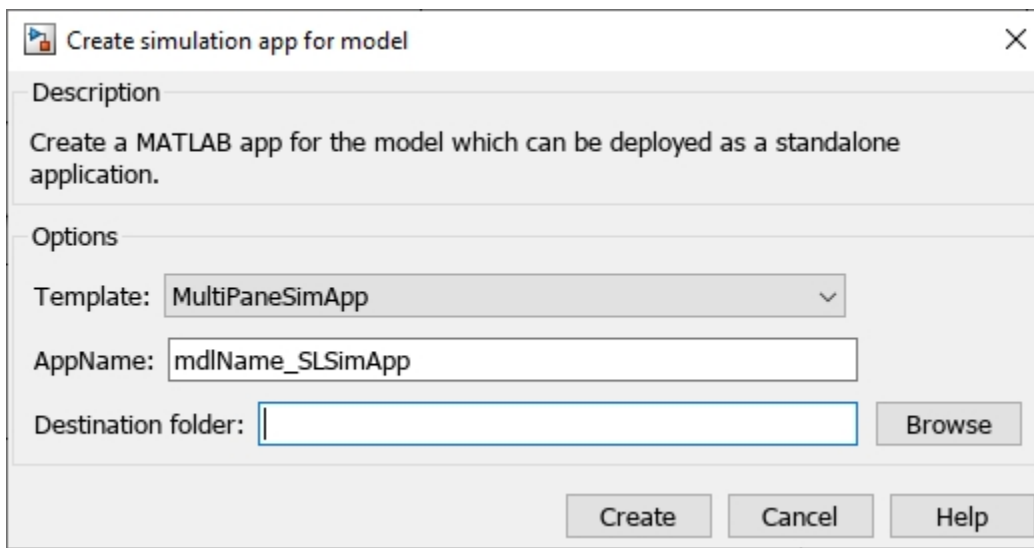
Simulink Compiler now supports simulation pacing

Starting in R2022b, you can use simulation pacing with the deployed standalone executables. You can slow down the simulation of your deployed executable, enabling you to better visualize the simulations and to understand the system behavior.

Automatically generate MATLAB app for a model from the Simulink toolstrip

Starting in R2022b, you can automatically generate a MATLAB® app for a Simulink® model directly from the Simulink toolstrip. You can also select the template for generation of the app from a drop-down menu

On the Simulink toolstrip, under **Save**, select **Export Model to Simulation App** to view options for generating the app.



FMU export now supports internal variables

In R2022b, you can configure internal variables in an FMU as a datastore, logged signal, or test point.

On the Simulink toolstrip, under **Save**, select **Export Model to Standalone FMU** to view options for exporting an FMU with internal variables.

▼ Access the Internal Variables of FMU...
Use model data editor to resolve to a Simulink signal object if the variable is not exported as expected.

Filter by name or description

Name	Exported	Source Type	Description	Unit	Exported Name	Datatype	Exported Datatype
internal_var1_gain	<input checked="" type="checkbox"/>	Logged Signal			internal_var1_gain	double	fmi2Real
internal_var2_prod	<input checked="" type="checkbox"/>	Logged Signal			internal_var2_prod	double	fmi2Real

R2022a

Version: 1.4

New Features

Bug Fixes

FMU supports export of instance parameters of model reference blocks

Starting in R2022a, Simulink Compiler™ allows you to export instance parameters of model reference blocks when you are exporting a Simulink model to a standalone FMU. Now you can export base workspace variables, model arguments and instance parameters promoted from the sub model.

Package additional files and folders in the exported standalone FMU

Starting in R2022a, Simulink Compiler allows you to package additional files and folders while exporting a Simulink model to a standalone FMU. You can find the option to package additional files in **Access Additional Resources...** in the **Allow user of FMU to** section in Export to standalone FMU dialog box.

Simulink Compiler now supports exporting Simulink models containing protected model to Standalone FMU

Starting in R2022a, Simulink Compiler supports exporting models with protected model to standalone FMU.

New simulink.compiler.genapp template for app generation in Simulink Compiler

Starting in R2022a, Simulink Compiler offers a `simulink.compiler.genapp` template to generate your app with it. The new `MultiPaneSimApp` template allows you to focus on tuning parameters, displaying results, and specify customizations easily. This allows you to use `simulink.compiler.genapp` for more complex models.

R2021b

Version: 1.3

New Features

Bug Fixes

Improvements for FMU Export

In R2021b, FMU Export functionality has following improvements:

- Simulink Compiler now supports FMU parameter selection and configuration on the FMU export dialog.
- Export FMU variables now have units and variable description.
- You can now export FMU with MATLAB project.

Export nested FMU

In R2021b, you can export a Simulink model with a FMU Import blocks as nested standalone FMU. When exporting a nested FMU, Simulink packs all dependent inner FMUs into the resources/ folder of the nested FMU. When the nested FMU is instantiated in a simulation environment, all inner FMUs will share the same callback functions provided by the environment, for example, logger and memory allocation functions.

Save and restore FinalState in Dataset format in deployed applications

In R2021b, Simulink Compiler allows you to save and restore the `FinalState` of a model in `Dataset` format in deployed applications. Dataset format enables you to save and restore the state even if there are virtual bus elements.

R2021a

Version: 1.2

New Features

Bug Fixes

Find All the Tunable Variables with `simulink.compiler.getTunableVariables` function

in R2021a, the function `simulink.compiler.getTunableVariables` enables you to find the names of all the tunable variables along with their nominal values. You can use `simulink.compiler.getTunableVariables` to find variables for simulations before and after deployment.

Export Simulink Models to FMUs with C Source Code

In R2021a, Simulink Compiler enables you to export a Simulink model to FMU along with C source code. You can check **Save Source Code** in the **Export Model to FMU Co-Simulation** window or use the command line API, `exportToFMU2CS('mdlName', 'SaveSourceCodeToFMU', 'on')` to export the model to FMU with C source code.

Non-real input and output variables are now exported with discrete variability

During standalone FMU export, non-real input and output variables are exported with discrete variability, instead of continuous variability.

R2020b

Version: 1.1

New Features

Automatically Generate a MATLAB App for the Model

In R2020b, you can use the `simulink.compiler.genapp` function in Simulink Compiler to automatically generate a MATLAB App, that can be compiled and deployed. The `simulink.compiler.genapp` function analyzes the Simulink Compiler model, creates its rapid accelerator simulation target, and generates a MATLAB App. You can use the generated App to simulate the model in rapid accelerator simulation mode with different inputs, parameters, and initial conditions and to plot the results. For more information, see `simulink.compiler.genapp`.

Specify Runtime Callbacks in the Deployed Applications

In R2020b, you can specify callback functions for root inport blocks and root outport blocks, in the deployable applications. The callback functions are specified as MATLAB functions. Use the callback functions to set the values at the root inport blocks and to obtain the values at the root outport blocks at every step. With the callback functions, you can specify input data and view the progress of the simulation while the simulation is running, and view the progress of the simulations.

Win32 toolchain support: Generate 32-bit FMU with Microsoft Visual Studio Compilers

Simulink Compiler now supports exporting Co-simulation FMUs with 32-bit binaries. This enables the FMUs to run on legacy hardware.

R2020a

Version: 1.0

New Features

Introducing Simulink Compiler

Simulink Compiler enables you to share Simulink simulations as standalone executables. You can build the executables by packaging the compiled Simulink model and the MATLAB code used to set up, run, and analyze a simulation. Standalone executables can be complete simulation apps that use MATLAB graphics and UIs designed with MATLAB App Designer. To cosimulate with an external simulation environment, you can generate standalone Functional Mockup Unit (FMU) binaries that adhere to the Functional Mockup Interface (FMI) standard.

To provide browser-based access to your deployed simulation, you can create a web app and host it with MATLAB Web App Server™. Simulink simulations can be packaged into software components for integration with other programming languages (with MATLAB Compiler). Large-scale deployment to enterprise systems is supported through MATLAB Production Server™.

Supports `sim` Command API

Simulink Compiler only supports `sim` function syntax that takes `Simulink.SimulationInput` object and returns `Simulink.SimulationOutput` object.

Any APIs making a structural change to the model, such as `add_block`, `set_param` are not supported.

Export Models to FMU

As a part of Simulink Compiler now you can export models to Functional Mock-up Unit (FMU) that supports Co-Simulation in FMI version 2.0.